

Remarks/Arguments

This is in response to the Office Action issued on 3/2/2006.

The Office Action objected to the specification as requiring filing dates and status for patent application serial numbers appearing in paragraphs [0036], [0037] and [0052]. Applicants have amended these paragraphs in compliance with the request accompanying the objection.

The Office Action objected to claim 1, 5, 13 and 18 as requiring the article "A" be inserted at the front of each claim. Applicants have amended claims 1, 5, 13 and 18 in compliance with the request accompanying the objection.

Claims 1-27 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 11-12 of co-pending U.S. Patent Application No. 10/779,558. Applicants are prepared to timely execute a terminal disclaimer to overcome the examiner's rejection if such becomes necessary. However, should this present submission be deemed to place all claims in condition for allowance, Applicants respectfully request withdrawal of the provisional rejection.

Claims 5-12, 13-17 and 18-20 were allowed. Applicants appreciate the recognition of allowable subject matter in these claims. Further, claims 22-27 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 22 has been amended to include the limitations of base claim 1, thereby rendering claim 22 allowable in compliance with the requirement of the Office Action. Claims 23-27 all variously depend from allowable claim 22 and are now also allowable by virtue of the amendment to claim 22 in compliance with the requirement of the Office Action.

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by USPN 6,351,700 to Muramoto et al. (hereafter Muramoto et al.). Applicants have amended claims 1-4 in an effort to promote the early allowance of these claims over Muramoto et al. In the amendment of claim 1, Applicants have emphasized that the mode to mode shift is synchronous, meaning that the slip speed across the first and second torque transfer devices is substantially zero during the shift (see e.g. para. [0040]). Furthermore, amendment to claim 1

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recites “at least one motor adapted for imparting torque to the transmission.” And, claim 1 now also recites controlling slip across the oncoming torque transfer device to substantially zero by “adjusting motor torque to establish synchronous operation wherein slip speed across the first and second torque transfer devices is substantially zero.” Muramoto on the other hand does not have a motor adapted for contributing torque to the transmission; rather, the motor of Muramoto is a step motor used for positional control of CVT elements (see e.g. col. 5, lines 31-41). Also, Muramoto is concerned with shifts which by their nature are not synchronous as recited in Applicants’ claim 1. For example and with reference to Figure 8 of Muramoto, a shift is caused to occur between direct and recirculation modes off synchronous. In Figure 8, the only synchronous operation is at the intersection (RSP) of the two solid curves each of which corresponds to one of the direct and recirculation modes. Any other operating points cannot be synchronous. Therefore, shifts from one mode to another, for example from point A to point B, is disclosed as occurring not through synchronous point RSP but rather through point C at a constant controlled CVT ratio and then to B. This shifting is described as release of the direct mode clutch 10 and apply of the recirculation mode clutch 9 and the operating point moves from A to C. Anywhere between A and C, both clutches are slipping and never is the slip equivalent and zero as required by the shift in accordance with applicants’ claim 1. To be synchronous, the shift would have to occur at RSP. But even that alone is not enough to anticipate applicants’ claim 1 since there is no teaching in Muramoto of accomplishing a synchronous shift including “while controlling slip speed [across the oncoming torque transfer device] to substantially zero by adjusting motor torque to establish synchronous operation wherein slip speed across the first and second torque transfer devices is substantially zero. Remember, the motor of Muramoto does not impart torque as required by Applicants’ claim 1. It is not possible for the apparatus of Muramoto to operate as required by the Applicants’ claim 1. Therefore, Applicants respectfully request reconsideration of the anticipation rejections based on Muramoto in view of the amended claims 1-4 and the remarks contained herein above.

Claims 1-4 were also rejected under 35 U.S.C. § 102(b) as being anticipated by USPN 5,833,570 to Tabata, et al. (hereafter Tabata et al.). Claim 21 was rejected as being

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unpatentable over Tabata et al. in view of USPN 5,931,757 to Schmidt (hereafter Schmidt).

It does not appear from the Office Action that fair consideration was given to Applicants' arguments in the previous submission distinguishing claims 1-4 over Tabata et al. since only a verbatim recitation of the original reason for rejection over Tabata et al. was proffered in the present Office Action and no discussion of Applicants' distinction thereover was given. Applicants respectfully request that the distinguishing remarks, repeated herein below, be addressed with particularity so that Applicants can fairly discern with certitude any lingering disagreement over the allowability of claims 1-4 over Tabata et al.

The present and preceding Office Actions state that Tabata et al. discloses an electro-mechanical transmission. However, the transmission disclosed by Tabata et al. is not a multi-mode, electro-mechanical transmission as recited in Applicants' independent claims. Tabata et al. does not disclose multi-mode, electro-mechanical operation as set forth in the Applicants' claims. The transmission of Tabata et al. is not operative for mode operation as set forth in Applicants' claims wherein mode operations are characterized by continuously variable ratio coupling of a transmission input member and transmission output member. More particularly, Tabata et al. fails to disclose first mode operation characterized by simultaneous first torque transfer device applied and second torque transfer device released states wherein the transmission input member is mechanically coupled to the transmission output member through a continuously variable ratio. Likewise, Tabata et al. fails to disclose second mode operation characterized by simultaneous first torque transfer device released and second torque transfer device applied states wherein the transmission input member is mechanically coupled to the transmission output member through a continuously variable ratio.

The present and preceding Office Actions also state that Tabata et al. discloses for controlling the shifting of transmission through a plurality of modes (i.e. a multi-mode transmission). However, as previously demonstrated in the prior response, the modes of Applicants' invention have specific and particular meaning and characteristics which are not shared by the transmission apparatus of Tabata et al. And, the modes referred to in Tabata et al. are not equivalent to the modes in the Applicants' invention. Assuming the Office Action

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refers to the modes of Tabata et al. corresponding to FIG. 8 including clutches CE1 and CE2, the modes disclosed in Tabata et al. do not correspond to the modes of the present invention. Nor does Tabata et al. disclose mode to mode shifting between such modes as set forth in Applicants' claims which would require specific slip speed and apply/release control sequences of clutches CE1 and CE2. So, not only does Tabata et al. fail to disclose mode operation as in Applicants' claims (e.g. transmission input member is mechanically coupled to the transmission output member through a continuously variable ratio), it fails to disclose mode to mode shifting as in Applicants' claims (e.g. controlling slip speed across the released clutch to zero by motor torque control, application of that clutch, release of the other clutch, and slip speed control of such releasing clutch to zero by motor torque control).

The present Office Action further states that Tabata et al. discloses controlling or adjusting motor torque while controlling slip speed across an applied oncoming torque transfer device and a released offgoing torque transfer device to substantially zero. And, the present Office Action further identified torque transfer devices referencing sets of clutches from the electrically controlled torque converter 24 (i.e. CE1 and CE2) and from the primary transmission 22 (i.e. C1 and C2). Applicants have pointed out the anticipation deficiencies of applying Tabata et al. to the Applicants' claims relative to the clutches and modes disclosed therein as relate to the electrically controlled torque converter 24 (i.e. CE1 and CE2). In similar fashion, however, the primary transmission 22 (i.e. C1 and C2) of Tabata et al. also fails to anticipate the Applicants' claims in as much as no modes as recited in the claims are disclosed by Tabata et al. The speed ratios associated with the primary transmission 22 (see also FIG. 3) are all fixed ratios and not continuously variable, thus negating any equivalency to Applicants' mode operation. Furthermore, regardless of the immediately prior "mode" deficiency, Tabata et al. fails to disclose mode to mode shifting as set forth in Applicants' claims which would require specific slip speed and apply/release control sequences of clutches C1 and C2 of the primary transmission 22. So again, not only does Tabata et al. fails to disclose mode operation as in Applicants' claims (e.g. transmission input member is mechanically coupled to the transmission output member through a continuously variable ratio), it fails to disclose mode to mode shifting as in Applicants' claims (e.g. controlling slip

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speed across the released clutch to zero by motor torque control, application of that clutch, release of the other clutch, and slip speed control of such releasing clutch to zero by motor torque control).

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. W.L. Gore & Associates. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). However, it is not enough that the prior art reference merely disclose all of the claimed elements. Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1458 (Fed. Cir. 1984). The identical invention must be shown in as complete detail as is contained in the claim. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Anticipation must be based on a single reference that describes the subject matter claimed in the patent with sufficient detail and clarity to demonstrate that the subject matter existed and that a person of ordinary skill in the art would have recognized its existence in the asserted prior art reference. ATD Corp. v. Lydall, Inc., 159 F.3d 534, 545 (Fed. Cir. 1998).

Applicants have demonstrated above that Muramoto et al. and Tabata et al. each individually fails to meet the requirements of anticipation in as much as each element of the claims is not found therein arranged as in the claims nor in as complete detail as contained in the claims. Muramoto et al. and Tabata et al. each also fail to describe the subject matter of Applicants' claims with sufficient detail and clarity to demonstrate that the claimed subject matter existed and that a person of ordinary skill in the art would have recognized its existence in the respective references. Therefore, Applicants respectfully request reconsideration of the anticipation rejection in light of the claim amendments and remarks herein above.

With respect to the obviousness rejection of claim 21, Applicants submit that having adequately distinguished the underlying base claim over Tabata et al. it is proper, in view of the additional limitation of claim 21, to withdraw the rejection.

Applicants respectfully request that all pending claims 1-27 be allowed to proceed to

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issue.

If the Examiner has any questions regarding the contents of the present response he may contact Applicant's attorney at the phone number appearing below.

Any fees associated with this response may be charged to General Motors Deposit Account No. 07-0960.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'V. Cichosz', written over a horizontal line.

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